

ART. XXI.—*New or Little-Known Victorian Fossils in
the National Museum.*

PART XIV.—ON SOME SILURIAN TRILOBITES.

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(With Plates LXI-LXIII).

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Introductory Remarks.

The trilobite fauna of the Victorian silurian beds is exceedingly rich, as proved by the large number of new forms being gathered into the Museum collections. It was at first intended to deal with the group as a whole in monograph form, but since this would involve more time than could be spared from other more urgent work at present, it seemed better in the meantime, to submit for publication descriptions of a few of the more interesting species.

The forms described below show many points of affinity with trilobites already known from Europe and North America. Perhaps the most interesting of these is the occurrence of a species, *Homalonotus vomer*, allied to the well-known wenlock guide fossil, *H. delphinocephalus*, Green sp. A noteworthy feature of the occurrence of this species at Wandong is its association with *Dalmanites meridianus*, Eth. fil. and Mitch., sp., a trilobite closely allied to the wenlock species, *D. caudatus*.

The following forms are here described:—

Ampyx parvulus. Forbes, var. *jikaensis*, var. nov.

Ampyx yarraensis, sp. nov.

Illaenus jutsoni, sp. nov.

Encrinurus (Cromus) spryi, sp. nov.

Homalonotus vomer, sp. nov.

Fam. TRINUCLEIDAE.

Genus *Ampyx*, Dalman.*Ampyx parvulus*, Forbes, var. *jikaensis*, var. nov.

Pl. LXI., Figs. 1, 2).

Description of the Victorian variety.—

The holotype selected is a nearly entire carapace, but without genal and frontal spines; whilst on the same slab are several impressions of the thorax and pygidium of the same form. Another specimen, from Mr. Spry's collection, shows a faint impression of the base of a frontal spine. In its subcircular contour, strongly convex and oval glabella, with deep sulci separating it from the cheeks, this variety closely resembles Forbes' species¹. The axis, however, is somewhat narrower in the Australian variety, being about one-fourth of the entire width of the carapace at the widest part of the thorax. The pygidium differs also from the British specimens in being slightly shorter in proportion to breadth. The thoracic segments, as in the type species, number five.

Dimensions. Length of carapace from anterior border of glabella to end of pygidium, 5 mm.; greatest width, 4.5 mm.; length of cephalon, 2.25 mm.; length of thorax, 2 mm.; length of pygidium, 0.75 mm.

Observations.—In Britain *A. parvulus* is recorded from the caradoc series (upper ordovician) and from the wenlock shale (upper silurian).²

The varietal name *jikaensis*, attached to the Australian specimens is derived from the parish name of the locality where it is found, Jika-jika.

This appears to be the first occurrence of the genus in Australia.

Occurrence.—In black, micaceous shale of silurian (melbournian) age. Moonee Ponds Creek, near Melbourne. Found and presented by Mr. J. Sidney Green. Mr. F. P. Spry, who

¹ *Ampyx parvulus*, Forbes. Mem. Geol. Surv. Gt. Brit., vol. ii., pt. 1. 1848, p. 350, pl. x., figs. 1, 1a, 2, 2a, 3.

² See Etheridge, Robt., Foss. Brit. Ids., vol. i., Palaeozoic., 1888, p. 40.

has also found this form at the same place, informs me that this shale was obtained about 20 or 30 feet down in a shaft near the Moonee Ponds Race Course, and below the bed of the creek.

Ampyx yarraensis, sp. nov. (Pl. LXI., Fig. 3).

Description.—Cephalon only. Subtriangular, with a prominent lengthened, ovate glabella, strongly convex, pointed at both ends, with a deep, elongate depression on each side near the base. Anterior extremity of glabella terminating in a long, flexible spine, nearly equal to the length of the glabella, and evidently originally much longer. A deep sulcus separates the cheeks from the glabella. Fixed cheeks triangular, with a convex anterior border and well-marked basal furrow. Neck ring of glabella narrow.

Dimensions.—Width of cephalon, 7.5 mm.; length of glabella, 4.75 mm.; length of spine, 4.25 mm.; width of glabella, 2.75 mm.

Affinities.—The nearest form to the present species appears to be "*Raphiophorus*" *culminatus*, Angelin¹; but its cephalon is narrower. Angelin's species occurred in the ordovician (trinuclens schists and limestones) of Mount Kinnekulle, Sweden.

Occurrence.—In yellow mudstone of silurian (melbournian) age. South Yarra (Yarra Improvements). Coll. by Mr. F. P. Spry.

Fam. ASAPHIDAE.

Genus *Illaenus*, Dalman.

Illaenus jutsoni, sp. nov. (Pl. LXI., Figs. 4, 5).

Description.—A small species for this genus. Form, long, oval. Head semi-oval; highest along the median line, roundly sloping to the lateral and frontal margins. Axal furrows well impressed at the posterior margin, ceasing a little beyond the top of the eyes. The eyes narrow, (?) sub-elliptical or lunate. A narrow and rounded median fold or ridge extends along the summit of the glabella, tapering off into a mere thread before reaching the anterior margin. Facial suture nearly the same as in *L. davisii*, but straight rather than concave when nearing the posterior margin. Anterior border somewhat narrow and

¹ Pal. Scand., 1854, p. 82, pl. xl., fig. 8.

evenly rounded. Lateral border rounded, and prolonged posteriorly into a short genal process. Thorax moderately convex along the median line. Axal furrows well marked. Body rings ten, short, of even width, gently curved on the axis, smooth, with granulate or striate margins. Pleura moderately narrow; about half the width of the axial segments. Fulcrum somewhat sharply bent; distal portion of pleura pointed at the extremities. Pygidium long, semioval, convex in median area; surrounded by a moderately broad fascia of even width, finely striate. Axis continued some way into the tail, defined by two rapidly converging furrows, the extent of which is not clear in the specimen described.

Dimensions.—Approximate. Specimen slightly and obliquely crushed. Total length, 37.25 mm.; length of cephalon, 14 mm.; width of cephalon, (cir.) 16 mm.; length of thorax, 7.25 mm.; greatest width of axis, 10 mm.; width of pleura (cir.) 3.25 mm.; length of pygidium, 16 mm.; width of fascia, 2.25 mm.

Affinities.—This handsome and distinct species is a typical *Illænus*, in having ten body rings and a moderately narrow axis. One of the nearest related species is *I. davisii* Salter¹ (= *I. crassicauda*, Sharpe), which is proportionally wider than the present species, has a broader and more tumid cephalon, blunt, genal angles, longer lateral pleura, and a rounder and shorter pygidium. Moreover the ornamentation of the glabella is a distinguishing feature in the Victorian specimen. It is of especial interest to note that the British *I. davisii* is found in the more argillaceous parts of the Bala limestone (upper ordovician) in Wales; and it also occurs in strata of equivalent age in Scotland.

Other simulant forms, both from the llandovery series (base of silurian proper) are *Illænus maccallumi*, Salter², and *I. nexilis*, Salter³. The first-named, however, is a *Bumastus*, with a typically broader body and well-developed eyes; whilst the second belongs to the section *Dysplanus*, with only nine body rings.

1 Mem. Geol. Surv. United Kingdom; Brit. Foss., Dec. ii., 1849, pl. ii.

2 Mon. Sil. Trilobites (Pal. Soc. Mon., vol. xx.), 1867, p. 210, pl. xxvii., fig. 1; pl. xxx. figs. 2, 3.

3 Ibid., p. 190, pl. xxx., figs. 4, 5.

Two Australian species of this genus have been recorded. In the first place de Koninck¹ doubtfully refers to a minute pygidium from the silurian limestone at Boree Cave, New South Wales, to *I. wahlenbergi*, Barrande; but in the absence of a full description, figures, or the type specimen, it is impossible to discuss this reference. *I. wahlenbergi* of Barrande² is a shorter and stouter form than the present, and has prominent, extended, genal spines; whereas in *I. jutsoni* the genal processes are closely adpressed to the upper part of the thorax. The second specimen known from Australian rocks is *I. johnstoni*, Eth. jnr.³ described by Mr. Etheridge from the silurian of Zeehan, Tasmania; and from rocks of like age at Borenore near Orange, New South Wales. This latter species is, as Mr. Etheridge points out, of the type of *I. purchisoni*, Salter.

Occurrence.—In olive-brown indurated mudstone of silurian (melbournian) age. From a quarry between Heidelberg and Templestowe. Collected and presented by Mr. J. T. Jutson.

Fam. ENCRINURIDAE.

Genus *Encrinurus*, Emmrich.

Subgenus *Cromus*, Barrande.

Encrinurus (Cromus) spryi, sp. nov. (Pl. LXII., Fig. 1).

Description.—Carapace sub-oval; anterior broad, roundly acuminate at posterior extremity. Central axis prominent; pleural areas strongly convex.

Cephalon hemispherical, less than half as long as wide. Glabella subpyriform, comparatively narrow behind, finely tuberculate anteriorly, and with two deep, transverse sulci above the neck rings, interrupted in the middle. Fixed cheeks sometimes tuberculate, with a deeply grooved posterior margin. Eyes prominent, not often well preserved in these specimens.

Thoracic segments eleven, comparatively narrow and crowded; axis slender, about one-quarter the width of the carapace; pleura thickened or tuberculate at the axial furrow.

1 Descr. Pal. Foss. N. S. Wales.—Mem. Geol. Surv. N. S. Wales, Pal., No. 6, 1898, p. 36.

2 Nouv. Trilob., 1846, p. 13. Also Syst. Silur. Bohême, 1852, vol. i., p. 684, pl. xxxiv., figs. 19-24.

3 Tasmania; Report of the Secy. for Mines for 1895-6, p. xlii., pl.—, fig. 3. Also Rec. Geol. Surv. N. S. Wales, vol. viii., pt. iv., 1909, p. 319, figs. 1, 2.

Pygidium short, subtriangular, with rounded sides and a bluntly acuminate extremity.

Dimensions.—Length of type specimen, 17 mm.; greatest width, 11 mm.; length of cephalon, 4.75 mm.; length of thorax, 7 mm.; length of pygidium, 5.25 mm.

Observations.—A species described by A. F. Foerste¹, under the name of *Encrinurus mitchelli*, bears some relationship to the present form. It was described from specimens sent by Mr. J. Mitchell from the silurian of Bowning, New South Wales. When on a recent visit to Melbourne Mr. Mitchell saw the present specimens and suggested that they were the same as *E. mitchelli*. Since then I have carefully examined a large series of specimens in the National Museum collection from the Yarra Improvement Works and elsewhere near Melbourne, and have drawn the conclusion that they are distinct from the Bowning species although bearing strong affinities to them. The specimens here selected as the holotype of *E. (C.) spryi* was that labelled by Sir F. McCoy shortly before his decease, and that name is here retained. The differential characters between *E. mitchelli* and *E. (C.) spryi* are these, viz., in the former the carapace is longer; the axis is broader; the glabellar furrows are almost obsolete; the pygidium has nearly straight instead of curved sides; and the extremity is more acuminate, as in a typical *Encrinurus*.

Occurrence.—In grey mudstone and shale from the Yarra Improvement Works, South Yarra. Also in various excavations in Melbourne. This is the commonest trilobite in the Melbourne bed-rock. Silurian (melbournian). Type presented by Mr. F. P. Spry in November, 1897.

Fam. CALYMENIDAE.

Genus *Homalonotus*, Koenig.

Homalonotus vomer, sp. nov. (Pl. LXII., Figs. 2, 3, Pl. LXIII., Figs. 1, 2).

Description.—This species, having an elongate, convex, triangular head, with a lobed glabella and non-remote eyes, falls

¹ Bull. Sci. Lab. Denison Univ., vol. iii. 1886, p. 124, pl. xi figs. 2, 3, 20.

within the section *Trimerus* of Green. In general form it closely approximates to *H. delphinocephalus* of the woolhope and wenlock limestone of England, and the Niagara limestone of North America. It differs, however, from that species in the shape of the anterior part of the cephalon and in some minor details.

In general form *H. vomer* is elongate or long ovate, broadest at base of cephalon, tapering to a point behind; back depressed convex, with deflected sides. Cephalon triangular, acuminately arched in front with a strongly depressed surface¹, granulate; glabella subtriangular, truncated anteriorly, with a central, longitudinal crest and three pairs of furrows trending upwards and outwards. Eyes prominent, distant, a little more than half the width of the cephalon. Neck furrow sharply defined in the middle axial region, and by a broader depression at the base of the fixed cheeks.

Thoracic segments well defined, about thirteen; axial furrows broad, pleura bending sharply down at the fulcrum.

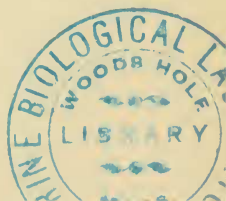
Pygidium long and slender, more acutely pointed than in *H. delphinocephalus*. Surface of carapace finely granulate. Judging from the type specimen, the power of enrolment was great. Although not so long as its nearest ally, *H. delphinocephalus*, this species must have been a handsome form when living.

Dimensions.—Type specimen. Length of cephalon, 32.5 mm.; width of cephalon, 46 mm.; length of glabella, 18 mm.; width between eyes, 27 mm.

From another specimen of similar size. Length of thorax, 59 mm.; width of thorax, 43 mm.; width of pleura in middle of thorax, 4.5 mm.; length of pygidium about 38 mm.

Occurrence.—Silurian. Wandong, Victoria. Type specimen presented by Mr. J. T. Jutson. Paratype presented by Mr. G. Sweet, F.G.S. A cephalon of a young specimen (additional paratype), presented by Mr. F. P. Spry.

1 Reminding one of a ploughshare, hence the specific name.



EXPLANATION OF PLATES.

PLATE LXI.

- Fig. 1.—*Ampyx parvulus*, Forbes, var. *jikaensis*, var. nov. Holotype. Silurian (Melbournian). Moonee Ponds Creek, Vict. × 2. Coll. and pres. by J. S. Green.
- Fig. 2.—*A. parvulus*, Forbes, var. *jikaensis*, var. nov. Paratype. Cephalon with proximal part of frontal spine. Silurian (melbournian). Moonee Ponds Creek. × 2. (Spry coll.).
- Fig. 3.—*A. yarraensis*, sp. nov. Holotype. Silurian (melbournian). South Yarra. × 2. Coll. F. P. Spry.
- Fig. 4.—*Illaenus jutsoni*, sp. nov. Holotype. Silurian (melbournian). Near Heidelberg, Vict. Coll. and pres. by J. T. Jutson. Nat. size.
- Fig. 5.—*I. jutsoni*, sp. nov. Profile of carapace of foregoing specimen. Nat. size.

PLATE LXII.

- Fig. 1.—*Encrinurus spryi*, sp. nov. Holotype. Silurian (melbournian). South Yarra. Coll. and pres. by F. P. Spry. Slightly larger than nat. size.
- Fig. 2.—*Homalonotus vomer*, sp. nov. Cephalon of holotype. Silurian. Wandong, Vict. Slightly larger than nat. size.
- Fig. 3.—*H. vomer*, sp. nov. Holotype. Silurian. Wandong, Vict. Coll. and pres. by J. T. Jutson. Nat. size

PLATE LXIII.

- Fig. 1.—*Homalonotus vomer*, sp. nov. Plesiotype. Head of immature specimen. Silurian. Wandong, Vict. Coll. and pres. by F. P. Spry. Slightly larger than nat. size.
- Fig. 2.—*H. vomer*, sp. nov. Paratype. Thorax and pygidium. Silurian. Wandong, Vict. Coll. and pres. by G. Sweet, F.G.S. Slightly less than nat. size.